

Attachment 1: Description of Emission Reduction Measure Form

Please fill out one form for each emission reduction measure. See instructions in Attachment 2.

Title: Commercial Recycling

Type of Measure (check all that apply):

- | | |
|---|---|
| <input checked="" type="checkbox"/> Direct Regulation | <input type="checkbox"/> Market-Based Compliance |
| <input type="checkbox"/> Monetary Incentive | <input type="checkbox"/> Non-Monetary Incentive |
| <input type="checkbox"/> Voluntary | <input type="checkbox"/> Alternative Compliance Mechanism |
| <input type="checkbox"/> Other Describe: | |

Responsible Agency: ARB/CIWMB

Sector:

- | | |
|---|--|
| <input type="checkbox"/> Transportation | <input type="checkbox"/> Electricity Generation |
| <input type="checkbox"/> Other Industrial | <input type="checkbox"/> Refineries |
| <input type="checkbox"/> Agriculture | <input type="checkbox"/> Cement |
| <input type="checkbox"/> Sequestration | <input checked="" type="checkbox"/> Other Describe: Solid Waste and Recycling |

2020 Baseline Emissions Assumed (MMT CO₂E):

Percent Reduction in 2020:

Cost-Effectiveness (\$/metric ton CO₂E) in 2020:

Description: Commercial waste accounts for 63% of California's overall waste stream, yet many business sectors have abysmal recycling rates. Large office buildings, for example, recycling only 6% of their waste. Cardboard and paper make up the single largest component of commercial waste, making up over 26% of the stream. Both of these materials can generate significant amounts of methane once landfilled.

Over the last decade thousands of California businesses have seen their waste management costs reduced through the establishment and expansion of commercial waste recycling. Increasing commercial recycling rates is a cost effective way to reduce greenhouse gas emissions.

Commercial enterprises should be required to obtain recycling services.

Emission Reduction Calculations and Assumptions:

Cost-Effectiveness Calculation and Assumptions:

Implementation Barriers and Ways to Overcome Them:

Potential Impact on Criteria and Toxic Pollutants:

Name: Scott Smithline

Organization: Californians Against Waste

Phone/e-mail: 916-443-5422

Attachment 1: Description of Emission Reduction Measure Form

Please fill out one form for each emission reduction measure. See instructions in Attachment 2.

Title: Greenwaste Composting

Type of Measure (check all that apply):

- | | |
|---|---|
| <input checked="" type="checkbox"/> Direct Regulation | <input type="checkbox"/> Market-Based Compliance |
| <input type="checkbox"/> Monetary Incentive | <input type="checkbox"/> Non-Monetary Incentive |
| <input type="checkbox"/> Voluntary | <input type="checkbox"/> Alternative Compliance Mechanism |
| <input type="checkbox"/> Other Describe: | |

Responsible Agency: ARB/CIWMB

Sector:

- | | |
|---|--|
| <input type="checkbox"/> Transportation | <input type="checkbox"/> Electricity Generation |
| <input type="checkbox"/> Other Industrial | <input type="checkbox"/> Refineries |
| <input type="checkbox"/> Agriculture | <input type="checkbox"/> Cement |
| <input type="checkbox"/> Sequestration | <input checked="" type="checkbox"/> Other Describe: Solid Waste and Recycling |

2020 Baseline Emissions Assumed (MMT CO₂E):

Percent Reduction in 2020:

Cost-Effectiveness (\$/metric ton CO₂E) in 2020:

Description: Increased composting of organic materials would serve as a very effective and efficient greenhouse gas mitigation technology. The anaerobic decomposition of these materials in landfills results in large amounts of methane being produced. Although some of this methane is recovered by gas capture systems, even a landfill with a perfect landfill gas system still emits methane before the system is turned on or after it is turned off. Increased composting would serve as a superior alternative to the landfilling of organics. Composting has multiple GHG benefits, including avoided landfill emissions, greater carbon sequestration in crop biomass, a decrease in the need for GHG-releasing fertilizers and pesticides, and a decline in energy-intensive irrigation.

The ARB should provide both direct (monetary) and indirect (regulatory) incentives for the expansion of greenwaste composting in the state. Some possible measures include:

A surcharge on organics that are landfilled should be used to offset some of the costs of composting.

The ARB should work with other agencies to streamline local and state-wide permitting and citing of greenwaste composting facilities.

The ARB should provide incentives and/or regulatory direction for agricultural application of compost.

The ARB should develop a greenhouse gas protocol for green-waste composting (or for agricultural application of nitrogen-based fertilizer, herbicides, and pesticides) to allow compost facilities to benefit from a market-based carbon trading scheme.

Emission Reduction Calculations and Assumptions:

Cost-Effectiveness Calculation and Assumptions:

Implementation Barriers and Ways to Overcome Them:

Potential Impact on Criteria and Toxic Pollutants:

Name: Scott Smithline

Organization: Californians Against Waste

Phone/e-mail: 916-443-5422

Attachment 1: Description of Emission Reduction Measure Form

Please fill out one form for each emission reduction measure. See instructions in Attachment 2.

Title: Material-specific Disposal Limits

Type of Measure (check all that apply):

- | | |
|---|---|
| <input checked="" type="checkbox"/> Direct Regulation | <input type="checkbox"/> Market-Based Compliance |
| <input type="checkbox"/> Monetary Incentive | <input type="checkbox"/> Non-Monetary Incentive |
| <input type="checkbox"/> Voluntary | <input type="checkbox"/> Alternative Compliance Mechanism |
| <input type="checkbox"/> Other Describe: | |

Responsible Agency: ARB/CIWMB

Sector:

- | | |
|---|--|
| <input type="checkbox"/> Transportation | <input type="checkbox"/> Electricity Generation |
| <input type="checkbox"/> Other Industrial | <input type="checkbox"/> Refineries |
| <input type="checkbox"/> Agriculture | <input type="checkbox"/> Cement |
| <input type="checkbox"/> Sequestration | <input checked="" type="checkbox"/> Other Describe: Solid Waste and Recycling |

2020 Baseline Emissions Assumed (MMT CO₂E):

Percent Reduction in 2020:

Cost-Effectiveness (\$/metric ton CO₂E) in 2020:

Description: A surprisingly small number of readily recyclable materials (e.g . corrugated cardboard, mixed paper, construction and demolition debris, greenwaste and food waste), account for the lion's share of California's GHG emission reduction potential. In addition to those materials disposed through residential and commercial collection, approximately 20% of disposed waste is hauled directly to the landfill by residents and businesses. Of this material, over half is readily recyclable construction and demolition debris (C&D). Material Specific disposal limits would require all Californians to limit their disposal of recyclable materials such as cardboard, paper, C&D, greenwaste, and food waste, regardless of whether it is collected by a refuse company or self hauled to the landfill.

Emission Reduction Calculations and Assumptions:

Cost-Effectiveness Calculation and Assumptions:

Implementation Barriers and Ways to Overcome Them:

Potential Impact on Criteria and Toxic Pollutants:

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Organization: Californians Against Waste

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Attachment 1: Description of Emission Reduction Measure Form

Please fill out one form for each emission reduction measure. See instructions in Attachment 2.

Title: Phase Out Diversion Credit for Use of Greenwaste Material as "Alternative Daily Cover"

Type of Measure (check all that apply):

- | | |
|---|---|
| <input checked="" type="checkbox"/> Direct Regulation | <input type="checkbox"/> Market-Based Compliance |
| <input type="checkbox"/> Monetary Incentive | <input type="checkbox"/> Non-Monetary Incentive |
| <input type="checkbox"/> Voluntary | <input type="checkbox"/> Alternative Compliance Mechanism |
| <input type="checkbox"/> Other Describe: | |

Responsible Agency: ARB/CIWMB

Sector:

- | | |
|---|--|
| <input type="checkbox"/> Transportation | <input type="checkbox"/> Electricity Generation |
| <input type="checkbox"/> Other Industrial | <input type="checkbox"/> Refineries |
| <input type="checkbox"/> Agriculture | <input type="checkbox"/> Cement |
| <input type="checkbox"/> Sequestration | <input checked="" type="checkbox"/> Other Describe: Solid Waste and Recycling |

2020 Baseline Emissions Assumed (MMT CO₂E):

Percent Reduction in 2020:

Cost-Effectiveness (\$/metric ton CO₂E) in 2020:

Description: Landfill operators are required to cover the active face of the landfill at the end of every day to prevent odors and risks to public health. The traditional material used for this purpose is soil, but operators have found that other materials such as processed green waste, auto shredder fluff, and tarps can also be used for this same purpose. These alternative cover materials are called Alternative Daily Cover (ADC). Under AB 939, the state's waste reduction and recycling law, the use of alternative daily cover is counted as recycling, and the materials are not considered "landfilled." This provides a perverse incentive for local governments to use greenwaste as landfill cover to meet their recycling goals, which is very problematic from climate change perspective.

There are three ways in which this practice contributes to global warming. First of all, these materials are porous and as such, are not very effective landfill covers, which results in significant GHG emissions escaping into the atmosphere. Secondly, the landfilled greenwaste itself produces methane when it decomposes anaerobically in the

landfill. Finally, this practice keeps the materials from greenhouse gas-reducing processes such as composting and anaerobic digestion. By providing an incentive for the use of greenwaste as ADC, the state is creating multiple GHG impacts.

The use of green waste as ADC is in direct contrast with the stated goals of both AB 32 and the Landfill Methane Discrete Early Action Measure adopted by the Board in June. The ARB, in collaboration with the CIWMB, should seek legislation to phase out diversion credit for greenwaste ADC.

Emission Reduction Calculations and Assumptions:

Cost-Effectiveness Calculation and Assumptions:

Implementation Barriers and Ways to Overcome Them:

Potential Impact on Criteria and Toxic Pollutants:

Name: Scott Smithline
Organization: Californians Against Waste
Phone/e-mail: 916-443-5422

Attachment 1: Description of Emission Reduction Measure Form

Please fill out one form for each emission reduction measure. See instructions in Attachment 2.

Title: Recycling Protocol

Type of Measure (check all that apply):

- | | |
|---|---|
| <input type="checkbox"/> Direct Regulation | <input checked="" type="checkbox"/> Market-Based Compliance |
| <input type="checkbox"/> Monetary Incentive | <input type="checkbox"/> Non-Monetary Incentive |
| <input type="checkbox"/> Voluntary | <input type="checkbox"/> Alternative Compliance Mechanism |
| <input checked="" type="checkbox"/> Other Describe: Protocol | |

Responsible Agency: ARB/CCAR/CIWMB

Sector:

- | | |
|---|--|
| <input type="checkbox"/> Transportation | <input type="checkbox"/> Electricity Generation |
| <input type="checkbox"/> Other Industrial | <input type="checkbox"/> Refineries |
| <input type="checkbox"/> Agriculture | <input type="checkbox"/> Cement |
| <input type="checkbox"/> Sequestration | <input checked="" type="checkbox"/> Other Describe: Solid Waste and Recycling |

2020 Baseline Emissions Assumed (MMT CO₂E):

Percent Reduction in 2020:

Cost-Effectiveness (\$/metric ton CO₂E) in 2020:

Description: Neither the California Climate Action Registry nor the ARB has adopted a greenhouse gas protocol for recycling and this will result in a lack of incentives for recycling under a market-based system, despite recycling's potential as a greenhouse gas reduction measure.

Ton for ton, recycling reduces more pollution, saves more energy and reduces GHG emissions more than any other solid waste management option. Despite a robust materials collection infrastructure and achievement of a 50% diversion rate statewide, Californians disposed over 42 million tons of solid waste in 2004. Over 60% of these materials were recyclable.

Recycling reduces GHG emissions in two important ways. First, recycling keeps materials out of the landfill, thus avoiding methane emissions. More importantly, recycling reduces emissions associated with the mining, processing, and transportation of virgin resources. Everyday consumer products such as paper and aluminum cans are made from virgin materials mined from the earth, transported great distances, and

eventually processed with industrial machinery. This all results in significant GHG emissions.

The lack of an accurate and quantifiable protocol for recycling will hinder the expansion of recycling under any upcoming cap-and-trade system, and we urge you to work with CCAR and the CIWMB to create this protocol.

Emission Reduction Calculations and Assumptions:

Cost-Effectiveness Calculation and Assumptions:

Implementation Barriers and Ways to Overcome Them:

Potential Impact on Criteria and Toxic Pollutants:

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